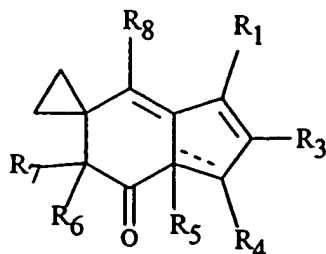


## CLAIMS

1. A compound of the formula



wherein  $R_1$  is  $(CH_2)_n-X-Y$ ,

where  $n$  is 0 to 4;

$X$  is O or S or N, and

$Y$  is  $-CH_2OC(O)(C_1-C_4)alkyl$ ,  $(C_1-C_8)alkyl$  optionally substituted with 1-2 OH or 1-2 halo; a monosaccharide,  $-CH_2C(O)-O-(CH_2)_2-O-C(O)CH_2SH$ ,  $-(CH_2)_2-O-(CH_2)_2W$  where  $W$  is halo;  $-(C_1-C_8)alkyl-O-(C_1-C_8)alkyl$ ;  $(C_6-C_{10})aryl$ ,  $(C_6-C_{10})aryl(C_1-C_4)alkyl$  or  $C(O)O(C_6-C_{10})aryl$  wherein the aryl group is optionally substituted with 1-2 OH, halo,  $(C_1-C_4)alkyl$ , or  $O(C_1-C_4)alkyl$ ;  $-CH_2CO_2(C_1-C_4)alkyl$ ,  $-CH_2CO_2H$ ,  $Si((C_1-C_4)alkyl)_3$  or an amino acid residue;

$R_3$  is H or  $(C_1-C_4)alkyl$ ;

$R_4$  is  $SCH_2CO_2(C_1-C_4)alkyl$ ,  $-S-(C_6-C_{10})aryl$  optionally substituted with halo, OH or  $(C_1-C_4)alkyl$ , or H;

$R_5$  is H, OH or absent;

$R_6$  is  $(C_1-C_4)alkyl$  or absent;

$R_7$  is OH or  $-O(Si((C_1-C_4)alkyl)_3)$ ; or

$R_6$  and  $R_7$  together are ethylenedioxy;

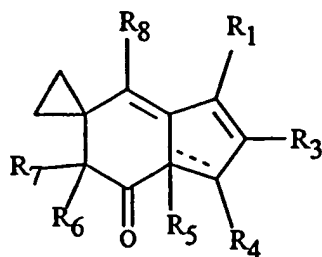
$R_8$  is  $(C_1-C_4)alkyl$  optionally comprising OH or halo;

the bond represented by ----- is present or absent; or

a pharmaceutically acceptable salt thereof.

2. A compound of claim 1 wherein n is 1, the bond represented by ---- is present, and R<sub>5</sub> is absent.
3. A compound of claim 2 wherein R<sub>3</sub> is CH<sub>3</sub>, R<sub>4</sub> is H, R<sub>6</sub> is CH<sub>3</sub>, R<sub>7</sub> is OH and R<sub>8</sub> is CH<sub>3</sub>.
4. A compound of claim 3 wherein X is O.
5. A compound of claim 4 wherein Y is CH<sub>2</sub>OC(O)CH<sub>3</sub>.
6. A compound of claim 4 wherein Y is (C<sub>1</sub>-C<sub>4</sub>)alkyl.
7. A compound of claim 6 wherein Y is -CH<sub>2</sub>CH<sub>3</sub>.
8. A compound of claim 4 wherein Y is a (C<sub>1</sub>-C<sub>8</sub>)alkyl substituted by 2 OH.
9. A compound of claim 8 wherein Y is -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OH.
10. A compound of claim 4 wherein Y is fructose.
11. A compound of claim 4 wherein Y is -(CH<sub>2</sub>)<sub>2</sub>Br.
12. A compound of claim 4 wherein Y is -(CH<sub>2</sub>)<sub>2</sub>OH.
13. A compound of claim 4 wherein Y is -C(CH<sub>3</sub>)<sub>2</sub>-O-(C<sub>1</sub>-C<sub>4</sub>)alkyl.
14. A compound of claim 13 wherein Y is -C(CH<sub>3</sub>)<sub>2</sub>-O-CH<sub>3</sub>.
15. A compound of claim 4 wherein Y is -C(O)-O-Phenyl.
16. A compound of claim 3 wherein X is S.

17. A compound of claim 16 wherein Y is phenyl substituted with OH or CH<sub>3</sub>.
18. A compound of claim 16 wherein Y is benzyl.
19. A compound of claim 16 wherein Y is -CH<sub>2</sub>CO<sub>2</sub>CH<sub>3</sub>.
20. A compound of claim 16 wherein Y is -CH<sub>2</sub>CO<sub>2</sub>H.
21. A compound of claim 16 wherein Y is (C<sub>1</sub>-C<sub>6</sub>)alkyl substituted by 2 OH.
22. A compound of claim 21 wherein Y is -CH<sub>2</sub>CH(OH)CH<sub>2</sub>OH.
23. A compound of claim 1 wherein n is 1, the bond represented by ---- is absent, X is S; Y is CH<sub>2</sub>CO<sub>2</sub>CH<sub>3</sub>; R<sub>3</sub> is CH<sub>3</sub>; R<sub>4</sub> is S, CO<sub>2</sub>CH<sub>3</sub>; R<sub>6</sub> is CH<sub>3</sub> and R<sub>7</sub> is OH.
24. A compound of claim 23 wherein R<sub>5</sub> is H.
25. A compound of claim 23 wherein R<sub>5</sub> is OH.
26. A compound of the formula



where R<sub>1</sub> is (CH<sub>2</sub>)<sub>n</sub>(Y);

where n is 0 to 4; and

Y is CHO, NO<sub>2</sub>, NH<sub>2</sub>, COOH, -(C<sub>2</sub>-C<sub>4</sub>)alkenyl-CHO, -CH(O(C<sub>1</sub>-C<sub>4</sub>)alkyl)<sub>2</sub>, cyclo(C<sub>3</sub>-C<sub>6</sub>)alkyl or 5-membered heteroaryl comprising one or more heteroatoms selected from N, S, or non-peroxide O, where the cycloalkyl or heteroaryl is optionally substituted with 1-2 (C<sub>1</sub>-C<sub>4</sub>)alkyl, CHO, OH or halo;

R<sub>3</sub> is (C<sub>1</sub>-C<sub>4</sub>)alkyl or H;

R<sub>4</sub> is S, CH<sub>2</sub>CO<sub>2</sub>(C<sub>1</sub>-C<sub>4</sub>)alkyl or H;

R<sub>5</sub> is H, OH or absent;

R<sub>6</sub> is (C<sub>1</sub>-C<sub>4</sub>)alkyl or absent;

R<sub>7</sub> is OH; .

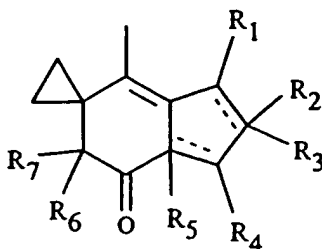
R<sub>6</sub> and R<sub>7</sub> together are ethylenedioxy;

R<sub>8</sub> is (C<sub>1</sub>-C<sub>4</sub>)alkyl optionally substituted with OH or halo; and

the bond represented by ----- is present or absent; or

a pharmaceutically acceptable salt thereof.

27. A compound of claim 26 wherein the bond represented by ----- is present.
28. A compound of claim 27 wherein R<sub>3</sub> is CH<sub>3</sub>; R<sub>4</sub> is H; R<sub>6</sub> is CH<sub>3</sub>, R<sub>7</sub> is OH and R<sub>8</sub> is CH<sub>3</sub>.
29. A compound of claim 28 wherein n is 1.
30. A compound of claim 29 wherein Y is CHO.
31. A compound of claim 29 wherein Y is cyclohexyl.
32. A compound of claim 28 wherein n is 2 and Y is CHO.
33. A compound of claim 28 wherein n is 0 and Y is NO<sub>2</sub>.
34. A compound of the formula



where  $R_1$  is  $(CH_2)_n(Y)$ ,

where  $n$  is 2 to 4;

$Y$  is OH or OAc; and

$R_2$  is absent; or

$R_1$ -C-C- $R_2$  together comprise a 5-7 membered cyclic ring, optionally comprising one or more heteroatoms selected from N, S, or non-peroxide O, and optionally substituted with  $(C_1$ - $C_4$ )alkyl, OH or halo;

$R_3$  is H or  $(C_1$ - $C_4$ )alkyl;

$R_4$  is H or  $CH_2CO_2(C_1$ - $C_4$ )alkyl;

$R_5$  is H, OH or absent;

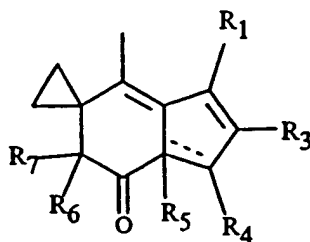
$R_6$  is  $(C_1$ - $C_4$ )alkyl or absent;

$R_7$  is OH; or

$R_6$  and  $R_7$  together are ethylenedioxy; and

the bonds represented by ----- are individually present or absent; or  
a pharmaceutically acceptable salt thereof.

35. A compound of the formula



where  $R_1$  is H;

$R_3$  is  $(C_1-C_4)$ alkyl or H;

$R_4$  is  $CH_2CO_2(C_1-C_4)$ alkyl or H;

$R_5$  is H, OH or absent;

$R_6$  is H or absent;

$R_7$  is OH; or

$R_6$  and  $R_7$  together are ethylenedioxy; and

the bond represented by ----- is present or absent; or

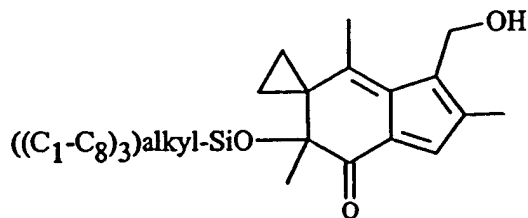
a pharmaceutically acceptable salt thereof.

36. A compound of claim 35 wherein  $R_1$ ,  $R_3$  and  $R_4$  are H, the bond represented by ----- is present; and  $R_5$  is absent.

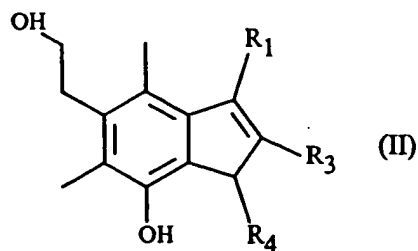
37. A compound of claim 36 wherein  $R_6$  is H and  $R_7$  is OH.

38. A compound of claim 36 wherein  $R_6$  and  $R_7$  are ethylenedioxy.

39. A compound of the formula



40. A compound of the formula (II):



where  $R_1$  is  $(C_1-C_4)\text{alkyl-Z}$  where Z is OH or halo, or  $-S-(C_5-C_{12})\text{aryl}$  wherein aryl is optionally substituted with OH, halo or  $(C_1-C_4)\text{alkyl}$ ;

$R_3$  is  $(C_1-C_4)\text{alkyl}$ ; and

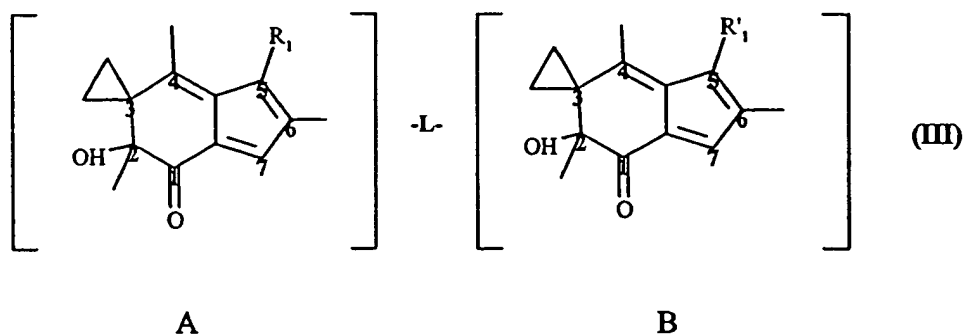
$R_4$  is  $-S-(CH_2)_n\text{-COOH}$  wherein n is 1-4; or  $-S-(C_5-C_{12})\text{aryl}$  wherein aryl is optionally substituted with OH, halo or  $(C_1-C_4)\text{alkyl}$ ; or

a pharmaceutically acceptable salt thereof.

41. The compound of claim 40 wherein  $R_3$  is  $-\text{CH}_3$ .

42. The compound of claim 40 wherein  $R_1$  and  $R_4$  are  $-S\text{-phenyl}$ .

43. A compound of the formula (III):



where L is a linker covalently attaching compounds A and B via the 3-, 5- or 7- position of one compound and the 3- or 7-position of the other compound; and

$R_1$  and  $R'_1$  are independently  $-(CH_2)_n\text{-Z}$  where n is 1-4, and Z is halo or OH; or absent.

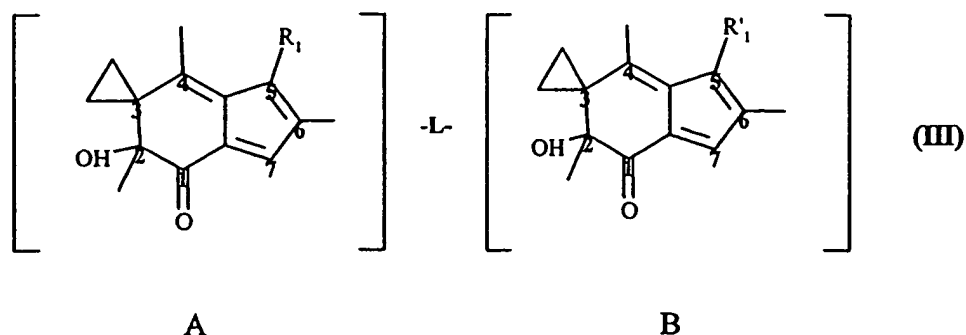
44. The compound of claim 43 wherein is  $-(CH_2)_m\text{-O-(CH}_2)_n\text{-}$ , where m and n are independently 1-4.

45. The compound of claim 43 wherein is  $-\text{CH}_2\text{-S-CH}_2\text{C(O)-O-(CH}_2)_2\text{-O-C(O)CH}_2\text{-S-CH}_2\text{-}$ .

47. The compound of claim 43 wherein A and B are linked via the 5-position and 3-position.

48. The compound of claim 43 wherein A and B are linked via the 5-position and 7-position.

49. A compound of the formula (III):



where L is  $-(CH_2)_m-O-(CH_2)_n-$ , where m and n are independently 1-4, or  $-CH_2-S-CH_2C(O)-O-(CH_2)_2-O-C(O)CH_2-S-CH_2-$ , covalently attaching compounds A and B via the 5-positions; and

$R_1$  and  $R'_1$  are independently  $-(CH_2)_n-Z$  where n is 1-4, and Z is halo or OH; or absent.

50. A pharmaceutical unit dosage form comprising an effective tumor growth inhibiting amount of the compound of claims 1, 26, 34, 35, 39, 40, 43 or 49 in combination with a pharmaceutically-acceptable carrier.

51. The pharmaceutical unit dosage form of claim 50 wherein the carrier is a liquid vehicle.

52. The pharmaceutical unit dosage form of claim 51 wherein the carrier is adapted for parenteral administration.

53. The pharmaceutical unit dosage form of claim 52 wherein the carrier is adapted for intravenous administration.

54. The pharmaceutical unit dosage form of claim 50 wherein the carrier is adapted for oral administration.



55. The pharmaceutical unit dosage form of claim 54, which is a tablet or a capsule.
56. A therapeutic method of inhibiting tumor cell growth in a subject in need of such therapy comprising administering a therapeutic amount of the compound of claims 1, 26, 34, 35, 39, 40, 43 or 49.
57. The therapeutic method of claim 55 wherein the subject is a human cancer patient.
58. The therapeutic method of claim 56 wherein the patient is afflicted with a solid tumor.